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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER
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SHOSHO, C

ART UNIT	PAPER NUMBER
1714	

DATE MAILED: 07/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/841,571

Applicant(s)

Tsujo

Examiner

Callie Shosho

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Apr 24, 2001
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle* 35 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 4-13 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirements.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☒ All b) ☐ Some\* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☒ Certified copies of the priority documents have been received in Application No. 09/400,628.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 20) ☐ Other: \_\_\_\_\_

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**DETAILED ACTION**

**Claim Rejections - 35 USC § 112**

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1 and 4-13 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Pre-Amendment B amends claim 1 to recite that the colorant has "mean particle size diameter". It is the examiner's position that this phrase fails to satisfy the written description requirement under the cited statute since there does not appear to be a written description requirement of the phrase "mean particle size diameter" in the application as originally filed. In re Wright, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163. While there is support throughout the specification for the phrase "mean particle size", applicant has not pointed to any portion of the specification, and examiner has not found any support for the phrase "mean particle size diameter" in the specification as originally filed.

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3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 and 4-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites that the colorant has "mean particle size diameter". The scope of the claim is confusing because it is not clear what is meant by "mean particle size diameter". How does this differ from "mean particle size"? Clarification is requested.

**Claim Rejections - 35 USC § 103**

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 4, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al. (U.S. 5,621,021).

Yoshioka et al. disclose an erasable aqueous ink which contains film-forming resin such as styrene-butadiene and 5-30% colorant having particle diameter in the range of 2-10  $\mu\text{m}$ . It is disclosed that the colorant is a colored resin formed from pigment such as Pigment Black 1, Pigment Green 7, and Pigment Blue 15 (col.2, lines 53-56, col.3, lines 39-62, and col.4, lines 1-14). Particular attention is drawn to examples 1 and 2 which disclose the use of colorants having particle diameter ranging from 2-5  $\mu\text{m}$  and 2-3  $\mu\text{m}$ , respectively.

The difference between Yoshioka et al. and the present claimed invention is the requirement in the claims that particles having a size of not more than 1.8  $\mu\text{m}$  account for not more than 1.6% by weight of the colorant and that particles having a size of not less than 7  $\mu\text{m}$  account for not more than 0.5% by weight of the colorant.

However, Yoshioka et al. do disclose that if the particle diameter is too small, the colored particle gets into the paper which results in an ink with poor erasability (col.3, lines 50-51). Thus, it would have been within the skill level of one of ordinary skill in the art to control the particle size of the colorant so that few, if any, particles have size less than 2  $\mu\text{m}$  since the presence of these particles would adversely effect the erasability of the ink.

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Similarly, Yoshioka et al. disclose that if the particle diameter is too large, color development is poor, so that sharp color is not obtained (col.3, lines 53-55). Further, given that the examples of Yoshioka et al. disclose the use of colorants having particle diameter ranging from 2-5  $\mu\text{m}$  and 2-3  $\mu\text{m}$ , it is clear that Yoshioka et al. envisaged using few, if any, particles having size greater than 5  $\mu\text{m}$ . Thus, it would have been within the skill level of one of ordinary skill in the art to control the particle size of the colorant so that few, if any, particles have size greater than 5  $\mu\text{m}$  since the presence of these particles would adversely effect the color development of the ink.

As further evidence to support the above position that it is within the skill level of one of ordinary skill in the art to control the colorant particle size within a particular range with few, if any, particles above or below this range, i.e. narrow size distribution, attention is drawn to a state-of-the-art reference, namely Gore (U.S. 5,976,232), which discloses that producing ink with a narrow size distribution of colorant particles improves the stability of the ink (col.2, lines 6-8).

In light of the motivation for controlling the size of colorant particles disclosed by Yoshioka et al. as well as Gore, it therefore would have been obvious to one of ordinary skill in the art to control the size of the colorant particles so that few, if any, particles are distributed below 2  $\mu\text{m}$  and above 7  $\mu\text{m}$ , as presently claimed, in order to produce a stable ink with good erasability and color development, and thereby arrive at the claimed invention.

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7. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshioka et al. as applied to claims 1, 4, and 11-13 above, and further in view of either Enami (U.S. 4,471,079) or Koyama (U.S. 5,977,211).

The difference between Yoshioka et al. and the present claimed invention is the requirement in the claims of a water-soluble polymer such as polysaccharide.

Yoshioka et al. disclose that the ink further contains additives which are used in usual writing ink compositions, but does not explicitly disclose the use of water-soluble polymer.

Enami, which is drawn to erasable aqueous ink composition, discloses the use of 0.1-15% water-soluble polymer including polysaccharides such as carboxymethyl cellulose and guar gum (col.9, lines 6 and 10) in order to adjust the viscosity of the ink (col.8, lines 64-65).

Alternatively, Koyama, which is also drawn to an erasable aqueous ink, disclose the use of 0.2-5% water-soluble polymer such as guar gum or xanthan gum (col.3, line 55) in order to control the permeation of the ink into the paper and further enhance the erasability of the ink (col.3, lines 43-46).

In light of the motivation for using water-soluble polymer disclosed by either Enami or Koyama as described above, it therefore would have been obvious to one of ordinary skill in the art to use such a polymer in the ink of Yoshioka et al. in order to produce an ink with suitable viscosity and enhanced erasability, and thereby arrive at the claimed invention.

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8. Claims 1, 4, 9-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uzukawa et al. (U.S. 5,120,359) in view of Yoshioka et al. (U.S. 5,621,021).

Uzukawa et al. disclose an erasable aqueous ink suitable for use in ballpoint pens wherein the ink has viscosity of 100-300 mPa s measured using an ELD viscometer (3° cone, 0.5 rpm, 20° C) and wherein the ink comprises film-forming resin such as styrene-butadiene and 10-70% colorant such as Pigment Black 1, Pigment Green 2, and Pigment Blue 15 (col.2, lines 15-25, col.3, lines 61-62, col.4, line 41, col.12, lines 30-33, and Figure 1).

The difference between Uzukawa et al. and the present claimed invention is the requirement in the claims of the particle size distribution of the colorant.

Uzukawa et al. broadly disclose that the colorant has mean particle size of 0.1-10  $\mu\text{m}$  (col.3, lines 49-51).

Yoshioka et al., which is drawn to erasable aqueous ink, disclose that if the colorant particle diameter is too small, the colored particle gets into the paper which results in an ink with poor erasability (col.3, lines 50-51). Thus, it would have been within the skill level of one of ordinary skill in the art to control the particle size of the colorant of Uzukawa et al. so that few, if any, particles have size less than 2  $\mu\text{m}$  since the presence of these particles would adversely effect the erasability of the ink.

Similarly, Yoshioka et al. disclose that if the particle diameter is too large, color development is poor, so that sharp color is not obtained (col.3, lines 53-55). Further, given that the examples of Yoshioka et al. disclose the use of colorants having particle diameter ranging



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from 2-5  $\mu\text{m}$  and 2-3  $\mu\text{m}$ , it is clear that Yoshioka et al. envisaged using few, if any, particles having size greater than 5  $\mu\text{m}$ . Thus, it would have been within the skill level of one of ordinary skill in the art to control the particle size of the colorant of Uzukiwa et al. so that few, if any, particles have size greater than 5  $\mu\text{m}$ , since the presence of these particles would adversely effect the color development of the ink.

As further evidence to support the above position that it is within the skill level of one of ordinary skill in the art to control the colorant particle size within a particular range with few, if any, particles above or below this range, i.e. narrow size distribution, attention is drawn to a state-of-the-art reference, namely Gore (U.S. 5,976,232), which discloses that producing ink with a narrow size distribution of colorant particles, improves the stability of the ink (col.2, lines 6-8).

In light of the motivation for controlling the size of colorant particles disclosed by Yoshioka et al. as well as Gore, it therefore would have been obvious to one of ordinary skill in the art to control the size of the colorant particles in Uzukiwa et al. to between 2 and 5  $\mu\text{m}$  so that few, if any, particles are distributed below 2  $\mu\text{m}$  and above 5  $\mu\text{m}$ , in order to produce a stable ink with good erasability and color development, and thereby arrive at the claimed invention.

9. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uzukiwa et al. in view of Yoshioka et al. as applied to claims 1, 4, 9-11, and 13 above, and further in view of either Enami (U.S. 4,471,079) or Koyama (U.S. 5,977,211).

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The difference between Uzukiwa et al. in view of Yoshioka et al. and the present claimed invention is the requirement in the claims of a water-soluble polymer such as polysaccharide.

Enami, which is drawn to erasable aqueous ink composition, discloses the use of 0.1-15% water-soluble polymer including polysaccharides such as carboxymethyl cellulose and guar gum (col.9, lines 6 and 10) in order to adjust the viscosity of the ink (col.8, lines 64-65).

Alternatively, Koyama, which is also drawn to an erasable aqueous ink, discloses the use of 0.2-5% water-soluble polymer such as guar gum or xanthan gum (col.3, line 55) in order to control the permeation of the ink into the paper and further enhance the erasability of the ink (col.3, lines 43-46).

In light of the motivation for using water-soluble polymer disclosed by either Enami or Koyama as described above, it therefore would have been obvious to one of ordinary skill in the art to use such a polymer in the ink of Uzukiwa et al. in order to produce an ink with suitable viscosity and enhanced erasability, and thereby arrive at the claimed invention.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art discloses erasable ink compositions containing colorant with specified particle size:

Banning et al. (U.S. 5,852,072)

Miyajima et al. (U.S. 4,687,791)

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie Shosho whose telephone number is (703) 305-0208. The examiner can normally be reached on Mondays-Thursdays from 7:00 am to 4:30 pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

CS-

Callie Shosho

7/21/01

*Vasu Jagannathan*  
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